Alussa Energy/FREYR Capital Markets Update

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PRESENTATION

Operator
Welcome to the Alussa Energy/FREYR Capital Markets Update Call. For the first part of this call, all participants will be in listen only mode, and afterwards there'll be a question and answer session. You can join the question and answer session on your phone by dialing 01. Alternatively, you can type these questions via the questions section below the video on the webcast. Today, I'm pleased to present Chi Chow, Strategy and Investor Relations at Alussa Energy Acquisition Corp. Please begin.

Chi Chow
Thank you, Mark. Good morning and good afternoon to everyone joining us today. On behalf of Alussa Energy and FREYR, we welcome you to the call. My name is Chi Chow, head of Strategy and Investor Relations for Alussa Energy. Before we proceed, I'd like to first remind everyone that this call may contain forward looking statements, including but not limited to FREYR and Alussa Energy's expectations or predictions of financial and business performance and conditions, expectations and or assumptions as to completion of the proposed transaction between the parties, product development and performance including but not limited to the timing of the development milestones, competitive and industry outlook and the timing and completion of the transaction.

Forward looking statements are inherently subject to risks, uncertainties and assumptions. They are not guaranteed of performance. I encourage you to read Alussa Energy and FREYR Battery's filings with the SEC for a discussion of the risks that can affect the business combination, FREYR's business and the business of the combined company after completion of the proposed combination. Alussa Energy and FREYR are under no obligation and expressly disclaim any obligation to update, alter or otherwise revise any forward-looking statements, whether as a result of new information, future events or otherwise, except for required by law.

Okay. So with that, let me introduce our speakers for the call today. We have first Daniel Barcelo, CEO of Alussa Energy; Tom Jensen CEO of FREYR; and our special guest, Jarand Rystad, CEO of Rystad Energy, a leading independent research and business intelligence company that focuses on analytics and consulting services across the global energy markets. Mark, if you could turn to page three of the presentation. Thanks.

So, our agenda today will include an update on the business combination transaction by Daniel, a discussion by Jarand on his firm's view on the battery industry and its role as a catalyst for the global energy transition, an update by Tom on FREYRs business since our transaction announcement in January. And finally, a Q&A session to close. If you'd like a copy of the slides today, we have posted the presentations to the investors section at both Alussa Energy and FREYR's websites.

So with that, I'll turn the call over now to Alussa Energy's CEO Mr. Daniel Barcelo.

Daniel Barcelo
Thanks, Chi. Good afternoon and good morning. I'm Daniel Barcelo, CEO of Alussa Energy. Thank you for your time today and we look forward to sharing a compelling update from FREYR Battery and a global battery sector outlook from Rystad Energy. If you go to the next slide, please. Next one.

Less than two years ago, we created Alussa Energy with veteran global energy execs, institutional investors, sell side analysts and Encompass Capital, a leading energy and energy transition hedge fund from New York City. Our focus was about creating shareholder value through a SPAC business combination by identifying the right opportunity with the right team at an attractive valuation. We believe we found such opportunity in FREYR Battery, which provides an early stage opportunity to invest in one of the world's cleanest, most advanced battery cell manufacturers at an attractive valuation. Our SPAC structure also democratizes access to such investments for retail and institutional investors that often don't have the access to the early elite private equity financing rounds. Next slide please.

As veteran energy investors, we understood the urgency for energy transition and the growth opportunities unlocked as global markets decarbonize transportation and energy systems and urgently prioritize cleaner air and water. And batteries are at the vanguard of this transition, given the combination of performance, market-based cost competitiveness, and an existing globally developed electricity grid. But a sustainability focus also means that such batteries need to be manufactured with minimal carbon and other water, air and environmental impacts all too often associated with extractive industries and in countries with less stringent environmental regulations. Our technology access with U.S. developed 24M semi solid lithium ion battery technology also provides speed to market and compatibility with known chemistries.

This month, such urgency was further underpinned by President Biden's executive order to support U.S. supply chains for advanced batteries and backed with up to $17 billion in financing. FREYR battery's commitment to clean, fully sustainable battery cell production of 43 gigawatt hours expected by 2025 in Norway, and potentially a further 50 gigawatt hours in a North American JV, aligns with meeting market demand for sustainably produced batteries and supply chains in Europe and the U.S.

Turning to the business combination transaction update. Alussa Energy, with $290 million of cash in trust will merge with FREYR, combining to build Gigafactories. The transaction includes a $600 million fully committed PIPE backed by strategic investors like Koch Strategic Platforms, Glencore, and institutional investors, including Encompass Capital, Fidelity, Franklin Templeton, Sylebra, and Van Eck. 100% of FREYRs existing shares will roll over into the combined company. The transaction implies a post transaction enterprise value of $544 million and an equity value of $1.4 billion, assuming no redemptions, which we consider highly attractive relative to battery peer group metrics. FREYR will trade on the New York Stock Exchange under the ticker symbol F-R-E-Y, replacing current ticker of a A-L-U-S. Next slide, please.

The timeline to transaction close includes an Alussa Energy record date of April 30th, the FREYR battery S-4 effective date of June 14th, the Alussa Energy extraordinary general meeting for stockholder vote of approval of June 30th. And that's to be followed by the Cayman and Norway mergers and transaction closing in early July. In summary, we encourage Alussa Energy Acquisition Corp shareholders to vote for the transaction, and we thank you for interest in the company.

Thank you for your interest, again, and on behalf of ourselves and FREYR, we'd like to now turn over the presentation to Jarand Rystad, CEO of Rystad Energy and advisor to Alussa Energy, for a macro market overview of the battery sector. Which again, will be followed by Tom Jensen, CEO of FREYR battery. Jarand?

Jarand Rystad
Thank you, Dan. And yes, we are now waking up after COVID to a new energy reality. And basically, everything has changed in energy market over the last 18 months. So, every estimate that was made before that has to be redone. First, we have cut a sliver of the global energy market through COVID that will never come back. But also, we have seen that due to policies and due to technologies, the energy transition has speeded up during COVID.

It will be a lot of substitution in this energy system. The main trend will be the substitution from molecules to electrons. And to understand that substitution, and to calculate and to estimate future energy demand precisely, we have to look at a very integrated system. So, this is a quite complex slide that you just see now. So, very briefly, from the left hand side on the slide, you see the primary energy, actually not very useful energy. So, if you have to convert that to molecules, you can use through defining, or electrons you can use through power generation.

And this energy has then to be distributed to the end users that you see on the right hand side now, which is buildings, transport and industry. But with intermittent energy that is coming from the green energy, from renewable power, you also have to store the energy, which is what you see in the middle here. And battery will be the key way to store this energy. So, basically, this is a system we are analyzing, we have quantified all of the elements here. And the total emission of the system is around 38 giga-tons of carbon dioxide. We have also, actually in our calculations, including methane emissions and all the other greenhouse gas emissions. So, that's why we have also included the food and agriculture sector as you see on the bottom.

The targets for the policymakers are clearly to get this carbon dioxide emissions down to close to zero by 2050, with the support also from carbon capture and storage. So, let's take a closer look at the energy emissions, sorry, at the emissions. So, here, you see this 38 giga-tons. And you see on the inner side here, how this is distributed between the power generation sector, the transportation sector, and the industrial sector, and also some land use changes. And looking at the three enabling technologies that we see, which is hydrogen, it's carbon capture and storage and its batteries. We actually see that batteries has the largest scope to address these emission reductions, either directly that you can do in the transportation sector from completely removing fossil fuel and rather use batteries as a way to move vehicles forward.

But also indirectly, in that power generation sector, because with the intermittency of the renewables, you really need some backup to store the energy. And with the lower battery cost, batteries are actually becoming the cheapest and best way to store energy in the grid. Also, batteries could have some potential in the industrial sector, to back up close to the end users on the energy side. So basically, this is what we are now focusing on in this presentation, is the battery. And batteries are, of these three technologies, the most mature technology.

Batteries have been developing and growing fast over the last five years. So, we are quite certain that this technology is working and is scaling as we speak. Why hydrogen electrolyzers, and also blue hydrogen and also CCS is lagging somewhat, it will be a lot of growth, but still, there is more uncertain technology elements there. So, let's then look first to one sector, which is the transportation sector that is quite well known, that this will be subject to a complete transition from gasoline and diesel on the road, to batteries, basically.

I think already, the battle between hydrogen and batteries is lost for hydrogen and batteries as well in terms of private cars. It's still a battle ongoing, but still, I think road transportation will be dominated by batteries going forward. However, in shipping and in aviation, hydrogen, or maybe

hydrogen in the form of ammonia might be also important. The important fuel going forward, as you see this green sliver on the top. But most likely, and according to our main scenario now, we see that the battery will increase to 70% of the total consumption as you see. And 70% is road traffic, about 7% is aviation, 7% is shipping 7% is construction machinery. And then the last part is trains and subways and the city systems for transportation.

So clearly, there will be a steep ramp but is this actually going to happen? Can we trust this? Let's look at the very fresh figures for electric vehicle as a part of the new sales. On the right-hand side, you see from the situation we are used to in Norway, that we, over the last 10 years, have had a gradual growth of electric vehicles. And now, we are close to 80% of new sales is actually either battery electric or plug in electric but more on higher share on battery electric. But almost all other countries have been lagging. And there's been questions whether this will happen or not, or whether this is a Norwegian phenomenon.

But just looking now at the first quarter figures, it's astonishing of fast growth. Both in Sweden, it's almost--in April, it was actually almost half of the cars sold was either battery electric or plug in electric. And the first quarter I should say, is about 30%. A similar trend is seen in France, in Germany, which is a very big market, also UK, in Italy and in China. So, we see actually, even faster growth of EVs in these countries than we saw in the early days. So, Norway, of course, in Norway, this was supported by government incentives, because it was not really competitive at that time. But now, the EV is very competitive, like for like, so of course it's exploding.

And looking at what we think is the most likely penetration going forward, we see, and also which is consistent with a 1.5-degree scenario, that is clearly on the agenda for all the leaders of the world. We see that we could see a growth to 72% of new car sales in 2030 could be electric, as you see here. And approaching 90% in the end of the 2030s and being almost completely electric in the 2040s, as you see here. We also have a slightly more conservative case, which is not giving us as fast transition, what we call the Rystad Energy 1.9-degree scenario, which is on on the downside here.

But we see so much happening now in terms of, for example, innovation. And we see that while ICE cars have stepped down in innovation and some R&D departments are shut down, we see a lot of new features implemented in the electric vehicles, like one pedal driving, like entertainment systems, like self-driving, all of this is now rapidly growing in the EVs, which means that you will be lagging if you're still on the ICE platform. So, that's why we expect a very quick transition here. Okay. So this was the transportation side.

Let's now look to the power sector. And the revolution that has happened there over the last 10 years is that renewable cost has come down with a factor of 80% for solar, and some 30% for wind power. And now, solar and wind is approaching--is already the cheapest source of electricity if you look at the full lifecycle. But now, it's even approaching the marginal cost of fossil fuel, with the full lifecycle cost of solar and wind. So clearly, then you will see no new construction of fossil fuel power plants going forward and you will gradually see a shutdown of existing fossil fuel power plants also, as the cost is coming down to between $25 and $50 per megawatt over full cycle.

But of course, you have the issue with intermittency. So what do you need? Well, you need some storage in the system. So let's look into that. And if you look at solar and wind, they are actually very good complements to each other. Because of course you have sun only in the in the middle of the day, while the wind is often blowing more in the evening. And also seasonally,

you have more wind in the winter and more sun in the summer. But this will require quite heavy grid transmission line upgrades to create, to smooth out this. And we have seen that it's lengthy processes to get all the approvals needed to build all these transmission lines.

So we think actually, at Rystad Energy, that batteries will sneak in and take a lot of this market. Rather than seeing the development of all this new transmission lines, we will see the batteries coming in at all stages and all levels in the grid, as you see here. It's a good business case to integrate batteries with the solar PV farms, basically, because the owners will then achieve a much better average price, because you can avoid to sell all the power in the middle of the day where it's very, very low prices, you can sell it in the afternoon, and the evening and the afternoon and evening peaks, or the morning peaks.

Also, the grid operators have incentives to use batteries, not only for frequency stabilization, which is very well suited for, but also for short- and medium-term and storage, talking about minutes and hours. And up to 12 hours, it's an extremely good business case, to use batteries, but also on the consumption side for hospitals, for factories, for big building complex, for many other applications, it is a good business case to install batteries to be able to optimize your own purchase of power from the grid and maybe sell back into the grid when it suits you. And also in the in the homes, it will be a good business case to combine maybe solar generation from the rooftop with batteries also.

So we see this broad implementation of batteries. It will be many different sizes and forms of batteries. It could be high power, low energy or it could also be low power, high energy batteries implemented in the grid. So, we think actually that this is the way that we will see, that will be the key enabler of renewables in the energy system. So, looking then at one example, this is from California. And here you'll see some baseload from nuclear and from hydro power. But then we look at in the future what the solar will be the key part of this generation. And of course, then you need to have battery capacity, corresponding to about twice the capacity you have on the peak production for the solar that will be sufficient to store energy from the daytime and to consume it in the afternoon.

And of course, especially with solar that has 365 cycles per year, you get a very low capital cost of the batteries, because you have so many cycle times. It could be more than 10,000. And then you will have a very low capital cost. So maybe the cost of solar, if that is done, let's say $25 or $30 per megawatt hour, the battery costs added would only add another $10 to $20 per megawatt. So still, even solar plus batteries can be cheaper than at least a marginal cost of the highest part of the fossil fuel systems today.

And then you need to upgrade those, of course, clearly, there will be a very big business case to do that. So this is just an indication of how batteries will take over. And we are already seeing the cost coming down. So all of this on the left hand side is named prospects for a new grid storage applications. And on the right-hand side, we have stacked this on top of each other in terms of known investments in terms of gigawatt power capacity installed. Of course, you have the additional energy element also. But these name projects, we think is only the beginning. We know it's a lot of projects planned now, so we expect this to grow much faster going forward.

So just looking at further into the future, all the way to 2050, we have made a 1.5-degree compliant global energy overview. We presented that the first time in the beginning of May, two weeks before the IEA. And it's surprisingly similar, actually to the IEA case, but however, we are more even more bullish on the solar side. And with that, we see actually that it will be 74%

renewable energy by 2050. And if you're looking at the energy carrier, how this will be carried to the end users. It's also here you see it will be (INAUDIBLE) 23% to 73% will be electricity. So we will electrify the entire society. But 35% of that, globally, need to be from storage due to the intermittency of the renewable energy sources.

So also, as a part of this, you need some molecules as a part of this energy mix. We also see a growth of hydrogen, of course, as you see here with 9%. Looking at America only, and then taking President Biden's ambitions seriously, this is a similar effort we have done for the American energy system, the primary energy has already been declining for almost 15 years in the United States, but we expect it to further be declining going forward. And the main reason, is that when you are using the brown energy, the fossil fuel, you're losing two thirds of the energy, then you are basically converting it to work. While for electrons, you're only using like 20%. So then it's possible to actually keep a stable energy consumption after losses, as the blue line is indicating here.

But in terms of total energy in 2050, even more of that will be green in the U.S. than average globally, when you're including, Africa, India, Indonesia, China, all the other countries. But actually, part of electrification, part will be approximately similar, and it will also here in either around 35% of the energy to be flexible from storage. So, I think that concludes my--or to summarize the total market we see for battery, yes, we see a big growth of the global battery market used for transportation driven by the personal cars, but also some buses and heavy duty cars. But as large market is actually coming to come from batteries used in the grid, energy storage systems in the grid. So we need not only one or two or three new battery factories globally, we need at least 200 of the largest scale battery factories we can think about.

So with that, I think I will summarize here. Again, with a few points, that the current the policies that is happening in both U.S. and EU to decarbonize. They will generate this accelerated shift to renewables. We will see like we see for EV, as big market in the grid. So, in total, we see this market grow with exponential growth. And there will be basically, a high demand for batteries going forward. So, with that, pass the word back to you, Chi. So, thank you.

Chi Chow
All right, Jarand, thank you. Jarand, that was fantastic. Thank you for that quick but very comprehensive perspective on the potential impacts that the battery industry could have on the thriving energy transition. It's great you highlight the opportunities in energy storage, it feels like that's, at this point, a very underappreciated and underestimated part of the market. So, we appreciate you being here with us here today.

For everyone online, please check out Rystad Energy if you're interested in energy macro work. Jarand and his team do fantastic work. Okay. So, let me reintroduce Tom Jensen, CEO of FREYR, there's been a lot going on at the company over the last few months since our transaction announcement. And Tom will provide an update on the business. Tom, over to you.

Tom Jensen
Thank you, Chi. And thank you, Daniel. And thank you, Jarand, for a very interesting perspective, one we share deeply. And welcome, of course, to all our legacy investors in the pipe transaction. And I'm saying our because we are as soon to be merged with Alussa Energy and change the ticker to F-R-E-Y on the New York Stock Exchange. And I'll share some perspectives and updates from the company on where we are. I also welcome, of course, new

investors into this. And I'll also talk about the value proposition and why we fundamentally believe that we offer a very compelling opportunity to existing and new investors in FREYR.

So, if you move to the next slide, please. Let me just start by sort of reminding you from the investor presentation we gave, to a broad variety of interested parties back in December and January, what FREYR is all about. So at the outset, as Jarand has been pointing out, it is a very urgent decarbonization that needs to happen if the world is going to stay compliant within the Paris Agreement, ambitions of a 1.5-degree, sort of limit, in terms of climate change. That will require a fundamental change in how we produce energy and use energy globally.

We need to cut CO_2 emissions in half by 2030, which is a daunting task. And I just want to say, it is impossible to do without the fundamental rollout of battery and electric solutions. So, what FREYR is doing in that context is, that we want to be a catalyst for accelerating the decarbonization of transportation and energy systems, globally. And we want to do that by actually offering decarbonized batteries. So, if batteries can play an as important role, as Rystad Energy has been articulating, they should be decarbonized at the outset. And that's really what we do.

And we started out our journey back in 2017, 2018, with sort of three core strategic beliefs. To actually succeed in this business, you need to build at scale, to have economies of scale in the business. And I'll get back to that, how do you sort of get to that point. You need to be fast, so you need to move at pace and have speed in your execution. And therefore, we've chosen business models, and let's say, choices along the value chain that allows us to move very quickly. And sustainability is the third sort of part of this equation. Because ultimately, it's about decarbonizing systems, and by decarbonizing systems, you will also create shareholder value. And that's probably the fourth ‘S’ that we're preoccupied with, is how to create value for our shareholders. So, scale, speed and sustainability will deliver superior returns for our shareholders. And we're fundamentally on track to delivering on a very exciting proposition. Next, please.

So, this is a timeline of what we've been doing since the idea was conceived back in 2017 and the incorporation of the company early 2018. We have developed gradually, strength in delivering towards our ambition. And on January 29th, 2021, we announced the business combination with Alussa and announced that we'd raised $600 million in the pipe transaction combined with the $290 million dollars in trust, giving us $850 million of growth capital to deliver on our objectives. And this follows in the wake of gradual increase in partnerships along the value chain.

We have now signed up more than 30 relationships across the entire value chain. We have a very strong and increasing customer pipeline, which I’ll come back to. We have very strong support from the Norwegian government. We keep adding momentum around the development of our production pipeline and we are now close to closing out the business combination and going public on the most sophisticated capital market in the world, which gives us both speed and scale in delivering on our objectives.

So, if you move to the next, please. So, in the previous investor presentation, we took quite a lot of time talking about the demand forecasts the world was estimating in terms of demand for batteries and we took that through a new lens.

We said technology innovation is going to continue and government regulation is going to continue, so costs are going to go down and government regulation is going to go up, and that sort of led to us believing in a 5.3 terawatt hour demand by 2030, which was at the time two times higher than most analysts were predicting including the IEA.

Now, you see that a number of forecasts through COVID and basically taking on board the need for accelerated decarbonization, that demand forecasts are even now surpassing ours and equally interesting is that it's not just in the commercial vehicle and electric vehicle space. It's also in system--energy system storage and other sort of demand segments.

So, our opinion is that the only way is up and away in the context of demand for batteries and the need for developing sustainable supply chains in this area is just increasing and increasing, so the fundamental backdrop for what we are aiming to do is increasingly positive. Next, please.

So, in that context, we actually hired Rystad Energy to do a study of what would the most pronounced market in terms of energy system storage require of installed capacity by 2030 and that analysis sort of showed us some very interesting things. So, first and foremost, renewable energy generation, as Jarand has been through, is required to increase significantly and that will basically replace fossil fuels, but also place a lot of strain on the energy system in the U.S.

But, the cost of implementing this is now so competitive that it will be implemented in an accelerated fashion and with the cost of battery systems also going rapidly down, the combination of the two will be a very powerful let's say solution to offset and replace fossil based generation. It will also place pressure on grids and infrastructure and batteries, again, have an important role to play there. So, all of this taken into consideration means that you will see a need for establishing a minimum of 900 gigawatt hours of installed battery capacity in the U.S. by 2030 to basically be in line with the scenarios that have been predicted.

You could furthermore say that if you want to be compliant with the Biden Administration's ambition, you probably need to double that installed capacity by 2030 and the only way to be able to do that is to have cost competitive and sustainable battery solutions, and in that context, FREYR fits like hand in glove. Next, please.

So, FREYR's ambition is to have the lowest carbon footprint of battery cell production in the world and I'm going to get back to how we're going to get to that point, but we've done a fairly deep study on what a fully localized and decarbonized supply chain, when producing batteries at scale would mean in terms of $C0_2$ footprint per kilowatt hour of battery produced.

And, here you see an estimate by a globally leading consultancy firm that have put up sort of a carbon curve on where we would place presuming we build our targeted 43 gigawatt hours of battery cell capacity and sourcing raw materials into that from a Norwegian or Nordic realm. And, we will actually have the lowest carbon footprint of all battery cell producers in the world, which is what is triggering a lot of interest in FREYR's offering from a broad variety and increasing number of customers because we are offering a decarbonized solution to a decarbonizing agenda.

So, if you then move to the next, I'm going to show a breakdown of that. So, the first and most important aspect of this is to actually be able to produce batteries in a low carbon energy environment and Norway has abundant renewable low cost energy, which can be used for battery cell production. But, equally important, we can also host active material production in

Norway and the Nordics and additional supply of critical input factors into battery cell manufacturing, all of which are extremely energy intensive industries.

Finally, packaging and recycling, which is a core sort of aspect and sort of a leading industrial, let's say, tenet of Norwegian and Nordic societies are already way ahead of global average sort of battery cell producing entities in the world today. So, combining all of those elements will allow us to reduce $C0_2$ footprint compared to global average by more than 80 percent. This is a fundamentally important offering that we are offering now to our clients and we are very positively encouraged to see that this is an increasingly important decision making factor for customers when they are deciding on long term strategic supply of batteries. Next, please.

But, FREYR doesn't want to stop there. We want to move further from an 80 percent reduction to a net zero ambition and all of this is going to be possible by electrifying the currently harder to abate parts of the sector. And, we've looked into how batteries can play a role across a broad variety of these segments and also Rystad Energy pointed out, it is totally possible to envision a net zero carbon environment and batteries have, again, the most fundamentally important role to play in that and therefore, producing batteries and establishing production footprint of decarbonized batteries in the most advantaged location is, in our opinion, a very strong value proposition. Next, please.

So, this is all driven by Norway's superior advantage in terms of power generation and Norway has an abundance of hydroelectric power generation. It's often referred to as the battery of Europe, given the highly flexible nature of the hydropower that we have. In addition to that, we are now seeing increasing developments of onshore wind and over time, also offshore wind, which will complement a very strong hydropower base. We have today somewhere between 10 and 20 terawatt hours of surplus power.

We are connected to many European countries and the continent through various cables, but we also have very strong power island characteristics of the hydropower that we have, in particular in the area we are going to produce batteries, which gives us an intrinsic and fundamental cost advantage in electricity, which again is the core cost component along the battery value chain and therefore, it's a very fundamentally strong starting point. Next, please.

So, as also pointed out by Jarand, Norway has been leading the charge, pun intended, in terms of electrification and we started adopting electric vehicles while helped by the Norwegian government more than 10 years ago, which means that we know institutionally and sort of we have gained institutional knowledge in Norway and what happens to a society when you deeply electrify it.

More than 90 percent of all vehicles on a monthly basis now sold are electric, so we know how to establish charging stations, range anxiety, how to deal with that and how to sort of figure out how you live in a society where all the cars around you are more and more electric and that is sort of driving the development of the society.

Marine sectors are being electrified. The domestic aviation grid, we want to have fully electric by 2040, so Norway is well advanced and in the forefront of the electric revolution if you like. And, that is also triggering development of upstream raw material providers and downstream system providers, who all today are buying battery cells from Asia and all of them are interested in buying battery cells produced in Norway and the Nordic region and on top of this, Norway and

the Nordic region also hosts large amounts of deposits of critical elements that you need for battery cell production.

And, it's not only deposits. It's being converted into raw material production. In Finland, lithium cobalt are being produced today. Copper, nickel, and other products are being produced in Norway and Sweden and there are huge deposits of additional elements like this, also offshore in Norway where the concentration of these minerals are 10 times higher than what you find on land.

So, the main point with all of this is that you will see the emergence of a very strong battery belt in the Nordic region and Norway could be the absolute forefront of this and therefore, you see a number of initiatives following in the wake of FREYR's initiative and we're super excited about being the leader in the Norwegian battery ecosystem and driving the development along our compatriots and competitors in the Norwegian space. Next, please.

So, we have paid deep attention to developing a very strong supply chain because raw materials is the name of the game, but I'll talk about, towards the end, the cost breakdown of that entire value chain and why energy is so important and why some of these household names in the industry want to team up with FREYR. So, we're very excited to have very strong supply chain partners already signed up in partnerships with FREYR and there's a lot more to come.

We have very active dialogues with the leading brands in the world on everything from raw material sourcing through to electrolyte production, anode material production, cathode material production, separator production, copper foil production. Anything and everything you can think of that is important to go into the battery value chain, we are partnering with them and the core reason is, we have access to renewable energy and we are an industrial scaling partner of choice and therefore, we want to partner upstream from cell production to ensure that we can capture the value that is embedded upstream from battery cell production. Next, please.

We decided early on to move at pace, so speed and scale and sustainability are the three tenants of our strategy and one of the core reasons of looking for a technology to take to scale is that we didn't want to develop our own technology because it takes too long time. And, 24M is, in our opinion, the best available disruptive technology out there that has already been commercially introduced.

It was started out of MIT as a spinoff back in 2010, so it has more than 10 years of heavy R&D behind it. It is commercially introduced by some leading companies in Asia. We are the first adopter of this technology in Europe and we have deep exclusivity protection for the technology, in particular for the ESS opportunity of the technology, and we will be taking it to scale in Europe and we have strong protection not only in the Nordic region, but also across the European economic area. And, let me spend a couple of minutes talking about the benefits of the technology if we move to the next slide, please.

So, without going into too much detail of this technology, the main attribute of the technology, which we really found very compelling, is that it's innovation both on the cell design itself, but most importantly on the production process. So, you see the thin layers versus few and thick layers representation at the middle of the slide. Conventional, if you mind, battery production, which is the top part of this illustration, shows you these multiple repeating layer cake structures that have a number of, let's say, layers in them that are known energy carrying material.

And, what 24M has done is that they've basically enabled a very thick electro creation by basically mixing the electrolyte with the active materials upfront and the fact that they're doing that gives sort of two very distinct advantages. The first advantage is that you can put more energy carrying material into same volume metric unit of cell and you can remove all the production steps in electro creation that is required to remove solvents and binders, which basically the electrolyte replaces in the production process.

What this means for the lay man is that production steps are reduced from 15 to 5, so that's a 67 percent reduction in number of complicated producing steps, which translates into more than a 50 percent reduction on capital expenditure, more than a 50 percent reduction in footprint, more than a 40 percent reduction in energy consumption, more than a 40 percent reduction in labor costs. And, all of this can be implemented in the existing lithium ion battery paradigm.

So, on the left on the slide, you'll see that we can use any cathode material, any anode material, and any electrolyte and separate material into the production of these cells. And, that semi solid structure, as it's kind of conventionally called, speaks actually to the thick structure of the mix of the electrolyte and the active material, but it also offers a bridge into solid state batteries because it's a dual electrolyte system and 24M is already working with the DOE and ARPA-E on lithium metal anodes and therefore, you can easily imagine that over time, as we approach more solid state structures, that this technology can also be a bridge into that. So, we are very excited about the 24M structure and if you can then move to the next.

Let me talk about a little bit why this technology platform will always be better than conventional solutions, and let's start at the left of this slide where you have thicker electrodes. And, as I explained, the mix of the electrolyte together with the active material allows you to create really thick electrodes, having a lot of energy carrying material in the same volumetric unit as conventional solutions have.

And, in that structure, you both have more energy carrying material inside the cell, which has an economic benefit, and you have the cost structure advantage of reducing the number of production steps. So, relative to any other existing solution, 24M based technology will be fundamentally much stronger. But, as you then move to more thinner electrodes, which you need for faster charging applications, as for instance, so voltage applications would require, the benefit of the thicker electrodes diminish. But, you will always have the structural advantage of an improved production process and therefore, as we develop the 24M solution for an increasing number of market applications, we will always have a structural cost advantage, which of course in the race towards lower costs and higher energy densities, is a very strong situation and position to be in. And, that coupled with producing those batteries in a very advantaged location with fundamentally lower energy costs and a localized supply chain will give a very strong opportunity to capture very large market shares in increasing number of market segments. Next, please.

So, here are some of the products that we now are starting to market and are in active dialogues with, with customers. On the left, you see the commercialization journey of two of the Asian licensees and on the right, you see our initial product specifications for the ESS market, which is growing quite rapidly and we saw that early, and therefore, we targeted this technology specifically for that as it's ready for mass production and already in commercial production in Asia for that purpose. But, we're also now advancing quite fast on developing solutions for the EV space with the requirements that the large auto OEMs require in this regard.

So, we're super excited about the opportunity to be the first commercializer of a fundamentally disruptive technology commercially introduced and ready to be taken to scale in an advantaged location. Next, please.

Now, to give some additional updates on this, we are, as we have mentioned in previous investor conversations, targeting to build 43 gigawatt hours of capacity in Norway, predominantly using the 24M technology and we have strengthened continuously our relationship with 24M. They have strengthened their own financial position and we have also developed additional relationships, very strong, with the Asian licensees to basically exchange ideas on how to mutually benefit updates and improvements between each other.

The agreement we have with 24M is a very strong licensing and services agreement, multi-year evergreen license where we can produce products anywhere in the world. We can sell them anywhere in the world with temporary restrictions in Japan and Thailand, but those restrictions are gone once we are at commercial scale with our commercial facilities.

We have progressed on developing our customer qualification plan, which will be online next year. We have just concluded our tendering process and we'll be announcing this in short order and into the building you see on the slide here, we will be implementing Norway's first large scale lithium ion battery facility with expected startup of production next year.

We have also quite aggressively expanded our technology team buildout and I am very positively encouraged by the amount of interest we get from Asian experts and European experts across the entire value chain to join us in our team. We have top people from the Japanese battery society, from the Korean battery society, and from the Chinese battery society, experts with strong networks that allow us to populate our critical positions with top experts from around the world. Multiple Japanese, multiple Korean, and multiple Chinese people are now joining the value team and we're complementing that with European stakeholders and of course also supporting the build out of a Norwegian competence development with the science universities and the research organizations into the country.

So, we're super excited about starting up the customer qualification plan, which will be a fundamentally important catalyst for the customer journey that we're on. Next, please.

Now, on the customer side, we are in an extremely positive situation. As I've tried to articulate, the opportunity to market decarbonized low cost, high energy density batteries to an exponentially growing market segment and exponentially growing number of segments I should say that are sort of in electrification and decarbonization provides us with a unique opportunity to basically optimize our customer portfolio. And, we had, during the investor presentation, we were in some 40 customer acquisition processes. Now that number is well in the 60s, and we have put here active dialogues with unmet demand in the ESS commercial mobility space and in the electric vehicle space.

So, we actually do see that relative to the capacity that we are targeting for the ESS segment and for the EV segment, that there is a multiple higher demand for the offering that we have than what we are able to produce. And, of course, we aren't intending to deliver on all of this demand, but this is actually driving us towards considering to expand our production footprint also in other jurisdictions. So, with that, let me move to the next slide.

Here, you see where we're going to roll out our initial production facilities. This is in the mid part of Norway, Mo i Rana to be specific. It's 470 kilometers west northwest of Northvolt, our Swedish friends and brothers are building their facilities in Skelleftea, just a little bit east--southeast of where we are. And, in Mo i Rana, which is Norway's fourth largest ice free port and one of the most advanced industrial towns in Norway and hosts one of the more modern industrial parks in the country, we have secured more than 200,000 square meters of land and down on the quay there, you will see the customer qualification plan that I showed on the previous slide.

Now, in this acreage, given the space effectiveness of the 24M technology, we will be able to produce up to 35 gigawatt hours' worth of 24M based solutions and we are, right now, looking into whether we can increase those numbers further in the same acreage because of the effectiveness and efficiency of the technology. It is absolutely possible to envision to drive up speeds in how to produce this from the fundamentally simple production process, allows you to basically speed up how you produce the batteries and in our discussions and engagements with our equipment manufacturers, we have actually seen opportunities to optimize this further.

But, to start with, 35 gigawatt hours is a good start and we're well advanced in terms of rolling this out. So, if you then move to the next.

We are now in our 60 plus customer dialogues, seeing the potential need to actually accelerate Gigafactory 2 to start up at the same time as Gigafactory 1. So, we're looking into how to optimize Gigafactory 1 and 2 in one joint development, sooner than what we have originally anticipated and then we will gradually look into to what extent we can accelerate also subsequent sort of developments. But, the way in which this will be done is that in each of these Gigafactories, we will have a number of production lines and right now, we're optimizing the different customer engagements we have relative to each of these production lines so that we can ensure that we have maximum uptime, maximum yield, lowest possible scrap rates in production, all core aspects of being proficient in the battery space and all of that is made much simpler with the 24M technology.

So, we are in this fairly fortunate position I would say to actually be selecting a little bit the customer engagements we have to match with our ever-expanding production footprint. We are targeting 83 gigawatt hours of capacity by 2028. We also are making strong progress in terms of joint ventures, which we, in our investor presentation, articulated as a complementary strategy that we're having on top of the disruptive technology approach with 24M and here, we are basically in advanced discussions with some of the top tier Asian producers to capitalize on the Norwegian and Nordic, let's say, ecosystem, both in terms of renewable energy, but also the presence and availability of a decarbonized supply chain, which we are catalyzing through our partnerships with household names, upstream from battery cell manufacturing.

So, 83 gigawatt hours in 2028. We aspire to between 100 and 150 gigawatt hours in 2030 and we want to be come and are well on track to becoming a global champion in the battery cell manufacturing space with increasing attention across, as mentioned, multiple customer segments. If you move to the next, please.

Now, we also did disclose, leading up to our transaction close that we are in advanced discussions and negotiations with a major multinational industrial conglomerate in the United States. We definitely do see that we can replicate what we are now well advanced in doing in Norway in the North American realm. And, given the very exciting prospects of the ESS market,

coupled with the structural advantages for ESS applications for the 24M technology in the very near term, we believe that we can capture a minimum of 50 gigawatt hours in the U.S. market by 2030.

So, we obviously have already a very strong platform and relationship with 24M in this regard and adding this industrial muscle to that rollout capability is something that we're super excited about. We're also moving upstream--or downstream I should say from battery cell manufacturing into modules and packs, which is increasingly important of course going into the ESS space and therefore, we're delighted to have been partnering with Eguana, one of many discussions we're also having downstream from cell production, and you should expect a lot more news from FREYR in this area in the weeks and months to come to basically showcase to the world that we are leading the charge to speak in terms of the ESS segment. Next, please.

So, finally, talking a little bit about the relative cost advantages of our proposition, and this is also an illustration from the investor presentation we gave earlier. And, what I'm trying to articulate here is that FREYR will, on the relative basis, as long as we produce at scale, always have a structural cost advantage by using the 24M technology on raw materials and the reason for this is that we're putting more energy carrying material into the same unit of cell.

But, more importantly, what we're really determined--the winners in this industry--is your ability to convert those raw materials, again at scale, to finished product. And, that's where production process and business model plays in. So, as you can see, the production process improvement from the 24M technology, showing a 50 percent reduction from the lower capital expenditure, the lower energy consumption, the lower labor consumption, the lower footprint, as well as our business model of partnering upstream and not having a deep R&D unit inside will allow us to be superiorly effective in terms of conversion of the raw materials to finish product.

So, all of that allows us to sort of have a very strong confidence that we will, on average, be 20 percent cheaper than conventional solutions because we are, one, tapping into more energy dense material into one volume metric unit of cell and having structural advantages in the production process and a business model and location that allows us to sort of capitalize on that in a much greater extent. So, let's move to the next, please.

Now, that will allow us, again, to be on the left-hand side of the cost curve, which we're super excited about and of course, this is again based on long term average price forecasts that were made before Christmas and of course, these raw materials will fluctuate up and down. So, the most important thing for us is, one, we want to build at scale. We want to do that fast and if we do that with the right technology in the right location, we will always have a cost advantage relative to conventional solutions from the structural advantages of the 24M technology. Next, please.

Now, to do this, we need a very capable team and that's something that we've been really focused on in the early days of the development of the company to really attract the best and the brightest into this development. From the founder and Chairman of the company through to leading top professionals from the Norwegian energy-intensive and process-intensive industries in terms of project execution, having built and delivered multi-billion dollar complicated facilities all over the world and many of them in sequence and in parallel also attracting very strong operational excellence centric teams and then coupling that with, as mentioned, an increasing array of Asian battery experts is creating a very strong agile, versatile and diversified, I should

say, execution team to deliver on multiple projects in parallel in multiple geographical jurisdictions.

Next, please. And we've also got a very capable board in the new company, which we are extremely excited and proud to have assembled, with very strong participants from the Norwegian sort of industrial and financial realm, including our very strong friends in Alussa Energy. And very happy to also have Koch Strategic Platforms on board, in addition to very experienced people from Tenaris to basically complement the Norwegian sort of contingent into the board.

So I'm very happy with this. They are a board that challenges me every time I meet them, but also supports and sort of drives the development of the company on a very active basis. Really looking forward to having them made sort of the formal board of the new FREYR post-transaction close.

Next, please. Now, we're expanding our presence upstream and downstream. We are increasing the sort of, let's say, footprint of FREYR from cell to also include packs and modules. We're also very actively discussing recycling opportunities, which oftentimes is linked to active materials in mining and refining, and a broad variety of very strong propositions are happening in the space. So you should expect strong news in this regard in the weeks and months to come.

And let me then go to the final slide to summarize. Now, here you see a very interesting summary of what I've been trying to tell you. So first you see the breakdown of the value chain from extraction to active material production and then the cell production. And then on the right, you see the breakdown of the total cost structure along that value chain. And as you can see, more than 44% of the total cost of cell production comes from energy. But it's broken down in the different parts of the valley chain, but this tells you why the interest of teaming up with FREYR in a low-cost green energy environment is as strong as it is.

If you then move to the other cost components, you see why FREYR is doing its technology selection as we've done. Because we want lower capex, we want more efficient conversion technologies. We want to be able to drive down conversion costs and drive down energy costs, so that we can really end up with a superior value proposition. All of this in combination allows us to deliver the best possible battery solutions at scale, at speed, with a very sustainable footprint, and we're super excited about the opportunity.

Next, please. We also provided you with our pro forma financial projections. And zooming in on 2025, we're targeting $2.9 billion of revenue with a 25% EBITDA margin, generating some $700 million in EBITDA in 2025. We intend to grow beyond that point, of course, so free cash flow $1.6 billion upon completion of this rollout plan will allow us to grow way beyond 2025.

And if you then move to the next slide, you will see the multiples, which as Daniel Barcelo articulated at the beginning of the conference call, very strong sort of multiple environment relative to peers. And we're very excited about coming into a listed environment so that we can start delivering against our objectives, and showing to our legacy investors and new investors that investing in FREYR is a very strong proposition.

Now, next slide and final slide. What I've been trying to tell you is that the decarbonization agenda is fundamentally what is driving the energy transition. And having decarbonized

batteries to deliver against that agenda is a very solid value proposition. That is resonating with an increased number of customers across an increased number of market segments, all in an increasing way requiring batteries for the urgent decarbonization that is happening all around us. It's all been helped to a large extent by the sort of post-COVID fog clearing.

We're super excited about the opportunity. We really look forward to having the shareholder vote of the Alussa general meeting behind us, and start delivering against our objectives. So with that, I'll turn it back to the operator or to Chi to open up for Q&A. Thank you for your attention.

Operator
Thank you. If you wish to ask a question, you have two options. You can either dial 01 on your telephone keypad to ask your question verbally, or you can type your questions in the Q&A section at the bottom of the webcast. And so far, we have one question on the phone, so a couple more coming through now. So our first question comes from the line of Maheep Mandloi of Credit Suisse. Please go ahead. Your line is open.

Maheep Mandloi, Credit Suisse
Hey, good morning or good afternoon. Thanks for taking the questions, and thanks for the detailed presentation on this. Maybe if you could just probably talk about the relationship at 24M here and the exclusivity you have with them for this technology. And just wanted to learn more about your peers in Asia have--or how much capacity have they built, and what lessons have you learned from them for the first factories to be built next year? Thanks.

Tom Jensen
Well, thank you for that question. So, in terms of the licensing and services agreement that we have with 24M, a deep sort of partnership-based approach. That's kind of point number one. And it's an evergreen license, so as long as 24M has a valid claim in the market, we have rights to all existing and all future improvements of the technology.

And the way the licensing agreement is structured is that 24M owns all improvements that all its licensees developed with their technology, and that accrues back to 24M and that is then distributed back out to the other licensees. So that is in a way a very effective sort of outsourced way of improving the technology.

Now, Kyocera and GPSC in Japan and Thailand, respectively, have already taken the 24M technology to mass production scale. And there is additional licensee in China which is about to establish a gigawatt-hour scale with 24M technology for the automotive specs. So we have already connected with our Asian, let's say, sister and brother licensees with very sort of strong initial dialogue, in terms of collaboration on cell design, supporting each other in terms of learnings of, you know, getting up to speed, the bottlenecking production facilities, and all of those things.

So, in terms of the exclusivity protection, we have exclusivity protection for up to 10 years for the production of 24M-based batteries for the ESS market in the Nordic region, and we are one out of only two potential companies that can produce that in the entire European Economic Area. And we are the only licensee so far in Europe. So right now, we are the only licensee for the 24M technology in Europe. And going forward, especially for the ESS market, we will have a very strong, let's say, vantage point and starting point, especially in this exponentially growing energy system storage market.

Maheep Mandloi, Credit Suisse
Thanks. No, thanks for the explanation. And maybe if we could just talk about exclusivity in terms of competition across other regions. I think you said you could pretty much compete in most of the regions, potentially produce also in most of the regions. I think that's why jumping to exploring the U.S. market over here (INAUDIBLE). I think any (INAUDIBLE) probably going to have to jump (PH) on that exclusivity for the end market.

Tom Jensen
So this is a production exclusivity, which we believe is ultimately important and we do believe, of course, that the locational advantages of Norway with low-cost green electricity in a world that is increasingly decarbonizing and presumably placing an increasing price on carbon which, by the way, is an additional benefit that we haven't catered for in our financial projections. We believe that, let's say, locational advantage and exclusivity from that point of view into a market segment which, you know, is now growing much faster than previously sort of assumed, is a very strong starting point.

Now, coupled with that, we are then establishing a strong value chain approach and partnership-based approach in the upstream part of the value chain. And our mission is really to export that complete sort of value chain approach into new markets. Because the world needs to build 200 of these large facilities as per Rystad's overview in quite short order. And, therefore, you need to establish very robust sort of strong value chains that can replicate fast. And, therefore, the interest to do that together with FREYR with a large industrial conglomerate in the United States is something that we're super excited about.

And the opportunity to go beyond that, obviously, is also there. And we are contemplating that, of course, in multiple jurisdictions, but we are also mindful that we need to sort of focus on delivering on our objectives in a stepwise and stage-gated manner. But the opportunity to sort of expand our horizon and grow with industrially savvy partners is very strong. And we have a partnership-based approach, so we like the opportunity a lot.

Maheep Mandloi, Credit Suisse
Thank you. And just one last one for me, and then just I'll jump back in the queue. In terms of the ESS and EV battery capacity, I think you spoke about 13 gigawatt and in 30 gigawatt hours for those two by 2025. So high level, just wanted to understand that does the--are the lines interchangeable? Can you move from ESS to EV or EV to ESS, or do the chemistries or the exclusive agreements kind of lock you down between those technologies? Thanks.

Tom Jensen
Thank you, an important question. So one of the beauties, an additional beauty of the 24M technology is that it's extremely flexible and versatile. So we can swap between cathodes chemistries and anode chemistries literally within a day. We can also change the size of the electrode structure and, of course, then the thickness and so on of it. So the short answer to your question is yes, we can change the production system to gear it more for different market segments if we so desire.

Having said that, we want to earmark as much as possible the production lines for the various market segments, because that makes more industrial sense. Then you don't need to have turnaround and changeover situations in your industrial system, which inevitably creates delays in production.

But yes, we are targeting the first two gigafactories, and the second one we are, as mentioned now, considering to accelerate and start up earlier. That will be dedicated to a large extent to the ESS and let's call it mobility market, the markets where thick electrodes will basically have this very strong advantage.

And then the two latter gigafactories by 2025 will, to a larger extent, be dedicated to the EV market. And then the joint venture approach is, to a very large extent, dedicated to the EV market and the Asian tier 1 or top-tier battery cell producer relationships we have, typically go hand-in-hand also with large OEM discussions.

So were quite excited about that opportunity, but relative to the flexibility on the technology, there's no limitation on us selling into any market segment. We can sell our batteries into any market segment in the world. The only temporary restrictions we have is in Japan and Thailand, and that's due to the fact that Kyocera and GPSC are licensees of the 24M technology. But that exclusivity expires before we are in commercial production with our facilities. So, hopefully, that answers your question.

Maheep Mandloi, Credit Suisse
Yeah, thanks for taking the questions.

Operator
Thank you. Our next question comes from the line of Sean Milligan of Williams Trading. Please go ahead. Your line is open.

Sean Milligan, Williams Trading
Hey, guys. Thank you for the call today and taking the questions. There's a slide where you talk about the hurdle rates for starting new factories, in terms of the offtake agreements. Can you spend a couple minutes talking about, you know, what your hurdle rates are specifically for starting new factories, and then what kind of protection is being built into the offtake agreements? Should we think of it as take-or-pay type agreements, or just your visibility into what your buyer needs are?

Tom Jensen
Okay, so great question. So typically in this industry, as many might be aware, and this is of course--there's a lot of nuance around this. But typically, you say--you see reasonably long offtake agreements to the tune of 5 to 7 years for a very large fraction of the capacity. And the reason for this, of course, is in part for financing reasons. You need to have secured offtake and bankable offtake to basically get the leverage you need to make the value proposition economically viable.

Now, with a technology that has more than 50% reduced capital expenditure and a much more efficient, let's say, production system, our need in this regard, and also opens up the opportunity to build smaller facilities. So it's sort of less capital intensive. It allows us to have a much more flexible approach in this regard. So our hurdle rate in this regard is we would like to see at least three years of the capacity that we want to build signed up for at least three years for 50% of that capacity, I mean. So 50% for three years is what we would ideally like to see.

Now, what we are then thinking or looking into in terms of combining gigafactory two with gigafactory one, in each of these factories we will probably have four production lines. And what

we will do is we will gradually start up these production lines to meet customer demand. But to actually invest in one larger facility as opposed to two smaller ones obviously makes more economic sense.

So right now, we are seeing probably more customer demand than what we had anticipated. So assuming that we sign up the right offtake agreements with the right value and contribution to the company which, of course, given the exponential growth in the ESS market, this is fairly strong, we see an opportunity to basically roll out and start the gradual buildout of those eight production lines reasonably quickly. And that will go into the ESS market first with mobility, commercial sort of mobility coupled with that. Yeah, and that's kind of some reflections around that, I should say.

Sean Milligan, Williams Trading
Okay, great, thank you. And then in terms of the fast-charging EV opportunity in the battery cell being delivered 2023, 2024, is that something that you're actively working with 24M on? Or is that something that, you know, 24M is working on their own? Can you just talk about that relationship regarding specifically the EV opportunity?

Tom Jensen
Yeah. So as mentioned, we have a deep licensing and services agreement with 24M, and it's a deep partnership-based approach. So we'd like to sort of look upon ourselves as one team in the way in which we are working on this. And clearly, the EV space and the automotive space is an important one also for FREYR. And in that regard, fast-charge capability for the 24M technology is important.

So we are, in addition to supporting 24M in their efforts that they are doing on their own through expert advice and leveraging our Asian experts into that, we are also targeting select, let's say, improvement programs and fast-charge, let's say, investigations to ensure that we can complement whatever activities 24M is doing in this regard.

Principally, you can solve the fast-charge problem through two pathways. First, you can create thinner electrodes as illustrated in one of the slides. And if you do that, you will still have the structural cost advantage of the simplified production process. But you can also optimize the mix between the active materials and the electrolyte, basically improving the internal resistance in the thick electrode, which will then allow you to improve the C-rate, while maintaining some of the thick electrode benefits.

So right now, there are a number of different development tracks ongoing to basically find the optimal solution and the most cost optimized solution. We don't think it's a question of whether we will have fast-charge capability with this technology. It's a question of the best way to do it, and meaning the most cost optimal way. And the sort of least cost optimal way will be, one, where we have very thin electrodes and changes to the production system; and a more cost optimized way is one where we have thicker electrodes through a better mix of electrolyte than active materials.

Sean Milligan, Williams Trading
Great, thank you. And I'll go back in the queue.

Operator

Thank you. And the next question comes from the line of Arthur Chan at Wells Fargo. Please go ahead. Your line is open.

Arthur Chan, Wells Fargo
Yes, good morning, people. Many investors see FREYR as a foreign company with a European platform listed on the New York Stock Exchange. What I'd like to hear from you guys this morning is, can you share a little bit more about your U.S. strategy, especially with your JV partner, and how you plan to maximize your U.S. business and exposure with U.S. investors?

Tom Jensen
Thank you. So first and foremost, the reason why we were very compelled by the business combination opportunity with Alussa Energy, was that it gave us access to the most sophisticated and largest capital market in the world. And as mentioned our tenets are speed, scale and sustainability. And to basically build that scale in a very capital-intensive business, you need access to the most sophisticated capital markets in the world. And on top of that, Alussa Energy was willing to move very fast at what we believe is a fair valuation and that's why we sort of rapidly moved into partnership with them. And on that note, we also saw while entering more deeply into the American realm so-to-speak that there is deep interest across the United States, across the value chain I should say, both in terms of partnering with FREYR in Norway and in the United States, for both development of processed materials and raw materials into battery cell production but also downstream from cell production and cell production itself and then, not least on the customer side. And our targeted or anticipated industrialization partner, which we're not at liberty to discuss at this point, is as mentioned in our previous releases, a very strong industrial conglomerate in the United States who see very deep benefit in being part of the energy transition and teaming up with FREYR, in this regard.

So we will of course be announcing more details to these plans, when we have progressed and finalized these discussions more deeply. But what you should expect us to do is to basically replicate and build upon the experiences that we have in Norway. So we aim to establish very strong value chains with supply chain partners, and strong systems with operational excellence for battery cell production, and deep, strong partnerships on modules and pack facilities and then basically take all of that and replicate that as quickly as possible in the U. S. market. And it will be centered around at least to a large extent the 24M technology platform because it's a very strong platform, in particular for the ESS market, where the U. S. market is the largest one in the world and exponentially growing. And so, we're very excited about the opportunity to—"Coming to America" as we would say, here.

Arthur Chan, Wells Fargo
Okay. Can you also discuss a little bit more about your SolidState and SemiSolid State lithium batteries?

Tom Jensen
Yes. So, the 24M technology is labelled SemiSolid structure and as I tried to say SemiSolid structure does not pertain really to the solid-state nature of solid-state batteries, but it pertains to the structure of the mix of the electrolyte and the active material. So it's almost like a clay-like structure, so it's like paste that you sort of cast onto the current collectors as opposed to coated in conventional production. And hence, the word "Semi-solid." But we do believe that the production platform, which is also a dual-electrolyte platform, think of about it as the anode and the cathode coming together like this and therefore, we can develop and 24M is developing

formulations on lithium metal anodes, for instances on the anode side, which is of course a big step forward towards the ultimate objective of SolidState batteries.

And beyond 24M, we are technology in a way, agnostic company. We like to look upon ourselves as an industrial scaling partner of choice who understand how to take complicated technology into an industrial setting and scale it efficiently. So therefore, the 18-month process that led us to selecting 24M has obviously also allowed us to investigate and enter into dialogues with a number of other technology companies. So we're keeping our finger on the pulse in that regard, and obviously will be moving quite rapidly forward with potential other technology companies, when we see that they are ready to go to commercial scale. And we think that solid state is a very interesting opportunity, but we still think there are fundamental R&D items that need to be solved before you can start to think about scaling the supply chain to actually get the economies of scale into such solutions as well. But we are keeping our finger on the pulse and in the meantime, the 24M technology is commercially introduced today, it is better than conventional technology when produced at-scale, and it offers a bridge into the solid-state future and therefore, we believe it's a very solid value proposition and again by producing it in the most favorable location with ultra-low cost, 100% clean electricity.

Arthur Chan, Wells Fargo
Okay. One final question, I'm just wondering, how do you guys plan to market yourselves to institutional investors and retail investors in the U. S. at this point?

Tom Jensen
So, we will be establishing and have already recruited a very strong investor relations capacity in the United States that come from let's say, the institutionalized investor community in the U.S. so we will have a deep physical presence through investor relations for the company established in the U. S. We will be doing capital market updates like this on a regular basis, we will also be doing of course, quarterly conference calls and generally speaking, we'll make ourselves available for our investors, which again, back to the sort of fourth almost tenet of our value proposition, speed, scale and sustainability and shareholders obviously are fundamentally important. We believe that having the right shareholders with us, complementing our journey is fundamentally important so that we can actually accelerate delivering on our mission. And the only way to do that is to be available and open for dialogue and discussions with our investors.

So we're very happy to sort of be on capital markets updates like this and we will have physical very strong presence in the United States, and we will actively engage with all of our institutional investors and also have let's say, more broader market presentations like this, to reach all of our investors as well.

Arthur Chan, Wells Fargo
Thank you very much for your answers. I will put myself in queue.

Operator
Thank you. At this time we'll take some questions from the web, so I'll hand back to our speakers for these questions.

Chi Chow
Great, thanks Mark. We have many, many questions that came in on the web so thank you all for your interest. Let me get to a few of them of there, actually I'm gonna throw one over to Jarand here. Jarand, you spoke to a 1.5-degree scenario in your talk, in scope for greening of

the energy supply. What does Rystad Energy see as A) the key constraints and B) the key accelerants in achieving this scenario?

Jarand Rystad
Well, we actually think it is possible to reach the 1.5-degree scenario and the detail that in the beginning of May, t's not easy but it's possible. And we have actually a slightly different trajectory to 1.5 degree than the IEA. We are more bullish on the solar, especially, also we see some more oil production and demand will actually happen over the next few years, it will go slightly slower down, because IEA is actually assuming that we have to have a behavioral change that is more than the COVID actually, towards the end of 2020, so we don't see that as needed. But of course, a quite rapid decline of coal, oil and gas, and that could be done by replacing it primarily with solar and wind, backed up by batteries, in some other places you can use hydro water pumping and a few other also back-up technologies. And in the peak season, in the cold season I mean, maybe some sill and natural gas power plant backup. But all of this is possible, and it will be a big drive from the technologies in itself with EV/PV plants and batteries, but you need additional policy support.

So we need carbon taxes, not maybe in every country globally, but at least you need it in many places. For example EU introducing carbon border tax would help to achieve that. So, we have also a 1.7-degree scenario and what we see now is that based on the policy support we are likely to end up closer to 1.7 degree with less policy support, closer to 1.5 degree, which is 770 giga-ton with 50% probably also. And maybe the most immature technologies are scale or carbon capture and storage and the scale of hydrogen. And so, and whether hydrogen is coming down to a cost of $1.5 dollars per kilo, which we think is needed because we need it for industry production, chemical production and aviation and maybe shipping is really where you need the hydrogen. But that is possible to scale, that's really in the 20, 30s and 40s. So--but of course, if you get some, what should I say, political counterforces, this could slow down, and then again you could see 1.7 or up to 1.9 as a more likely scenario. But we don't really see any complete showstoppers, but we need to see the same drive from politicians towards the Glasgow meeting and then we think it's actually likely to get down to 770 gigaton, aggregated to 2,100. So, yes. Happy to elaborate if there's a follow-up here.

Chi Chow
Okay, great, thanks Jarand. let me get to maybe one or two more here, I know we're running out of time here. So Tom, here's one for you, given the high number of customer discussions you've had, what would be the main hurdles or further capacity expansion to meet this demand? And are you considering other places in countries to replicate the FREYR formula in addition to discussions you're having in the U. S.? And the second part, do you think you could replicate the CO2 profile from the FREYR factory in Norway in other countries?

Tom Jensen
Well thank you. Multiple questions in there. So, in terms of increasing capability in Norway as I've mentioned, we're looking into ways in which we--so first and foremost, you want to debottleneck and expand capacity where you are, on a continuous basis. That's kind of in our industrial DNA, and one of the beauties of this technology is that it's also after our dialogue with our equipment and manufacturers, we see the opportunity to increase the speed of production quite a lot, relative to what we potentially believed before and that allows us to potentially increase the capacity on the same acreage relative to previously. And of course, there are other locations not only in Norway but also in the Nordic region, where we could sort of replicate the

same and also benefit from let's say, the low carbon low-cost electricity footprint with also a decarbonized value chain.

But when it then comes to other geographical jurisdiction and the U. S. is kind of a case in point, we do believe it's deeply possible to envisage a broader value chain rollout that also includes the dedicated development of renewable energy generation. And as also mentioned by Rystad and also articulated in the report that they did for us, the cost of course solar generation and wind generation coupled with let's say, battery storage is now coming down to cost levels which will allow us to also think about having a fully decarbonized power generation for complete value chain replication into such an environment.

So we believe this is just the start, we again look upon ourselves as an industrial scaling partners of choice and sort of a catalyst of the energy transition. We want to partner with the best and the brightest across the entire value chain and really sort of be the amalgamator of the different top-notch both industrial companies and technology companies and putting that together in this way, we believe as Jarand articulated, that it's absolutely feasible to replicate this many, many times at very strong and high speeds. And that requires a dedicated team that have built facilities in energy and energy intensive and process intensive industries before coupled with battery expertise, which we believe we have assembled a world-class team. And we're humbled to the task, but the opportunity is vast and keeps growing. So we're trying to find the best way to pace ourselves, and move into this but, so far so good.

Chi Chow
Great, thanks Tom. And we will finish up another question, a two-parter if you will, Tom. So you mentioned the cost of production is highly predicated on the lower cost of energy, how could this be dampened by the highest cost of labor in Northern Europe and cold you talk more about the various parts of the cost structure and how it affects your final cost, versus the market?

Tom Jensen
Yeah. So, as I tried to articulate on the last penultimate slide and the deck before the financials, a big part of battery production is raw material cost. But a large part of preparing those raw materials is also energy. And that's why having a localized supply chain in an area with low-cost green electricity will ultimately drive down the cost of the raw materials as well. But everyone in the battery industry that is subjected to and of course, more or less the same let's say, supply chain, some integrate upstream, some enter into long-term partnership agreements, we want to sort of do a partnership-based approach of localizing production, and they're all doing it to basically drive down the cost of raw materials.

And we believe the offering of the lower cost electricity is something that will resonate and is resonating a lot with a number of stakeholders and a number of initiatives already ongoing in Norway and the Nordic region for development of that kind. Now when it comes to the conversion cost which is the non-material aspect of the equation, basically, it boils down to capital expenditures, labor, that's two of the large components. And but labor constitutes a reasonably less amount of the cost structure, but one of the reasons why we also again chose the 24M technology is that it offers fundamentally lower let's say, labor requirements, because it's going from 15 to five production steps. Which again allows us to think even more deeply about automatization and digitalization of the solution, which again will allow us to speed up production even more. And the reduction of--I mean, two thirds of the electrode manufacturing process is basically gone which of course, means that a lot of steel and a lot of casings and conveyor belts and whatnot is not needed.

And that's why CapEx is more than 50% lower. And in an inflationary environment, that's obviously quite helpful, relative to conventional sort of solutions. So we think the choice of technology and the choice of location, coupled with a value chain approach where you attract energy intensive industries to an area where their key costs can be delivered in the area we are in, at much lower cost in a partnership with a customer that allows the whole value chain to basically be much more effective. And that's really what this is about, capital efficiency. And we believe our approach is a very capital efficient and sustainable one. The onus is on us to deliver on that and prove it to our shareholders, and that's what we're doing, 24 hours a day.

CONCLUSION

Unknown
Okay, great. Thank Tom. I think we're running long here, so I think we'll wrap it up there. So since thanks to everybody on the call and webcast for your interest and attention today. Alussa Energy and FREYR are very excited for the closing of our business combination transaction and in particular, we want to thank shareholders of both companies as well as our PIPE investors. Your support throughout our process was so very much appreciated and not taken for granted by us, by any stretch. So should you have any additional questions, feel free to please reach out to me, or the IR team at FREYR. Thank you and please enjoy the rest of your day.